



AIM Infotech

Autronic SM4, SM4 V1.08 and SM4 V1.09 ECUs

Release 1.03



ECU



1

Supported models

This document explains how to connect AiM devices to the Engine Control Unit (ECU datastream. Supported models are:

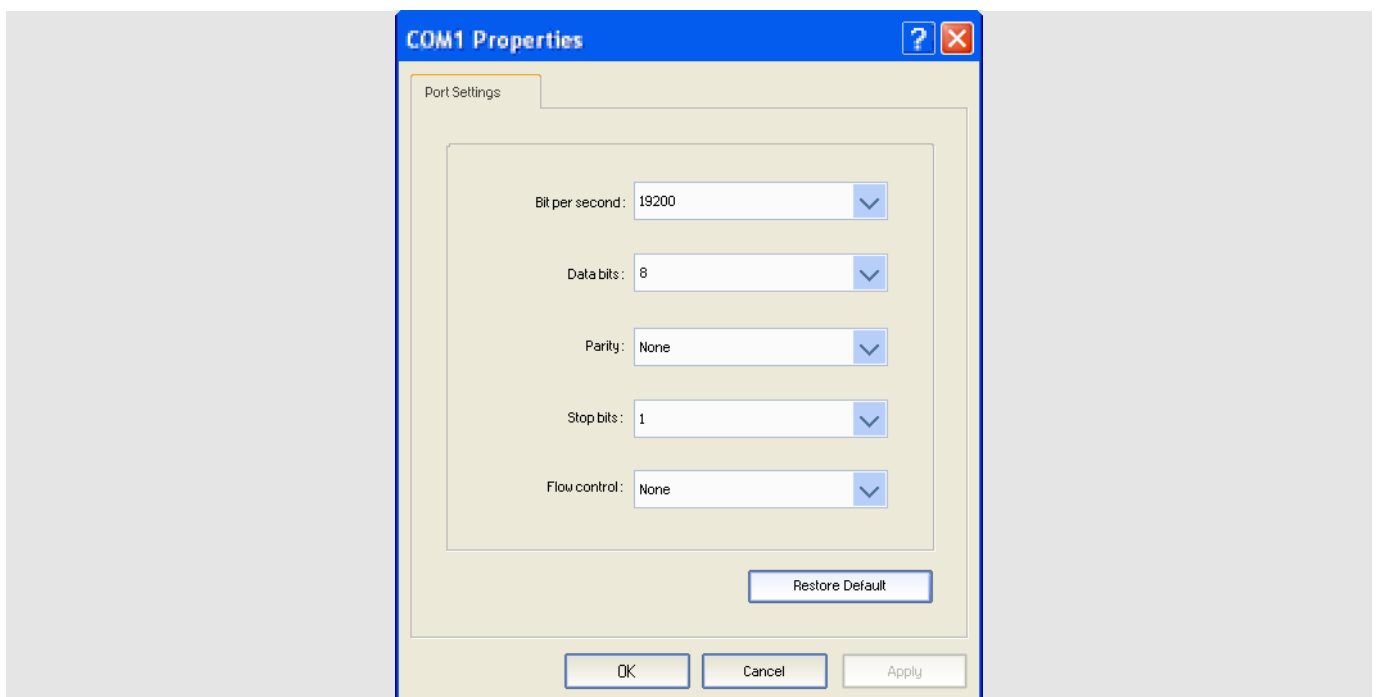
- SM4
- SM4 V1.08
- SM4 V1.09

2

Software configuration

Autronic SM4 V1.08 and V1.09 communicate using the serial protocol. For a good communication between the ECU and the PC the PC COM Port needs to be set with specific parameters. Here below COM Port panel on Windows® XP operative system is shown.

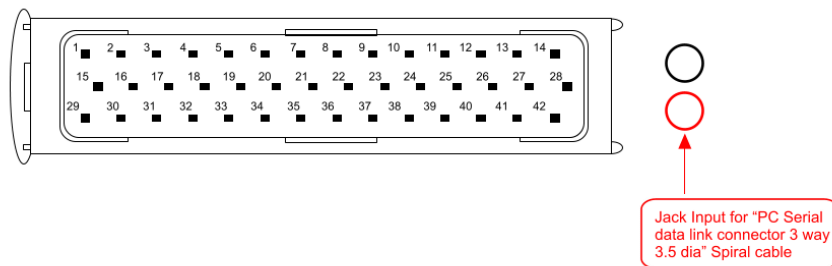
Please note: this panel is usually placed in Control Panel → System → Device Manager.



3

Wiring connection

These ECUs feature a 42 pins connector and two Jack connectors on its front as shown here below.

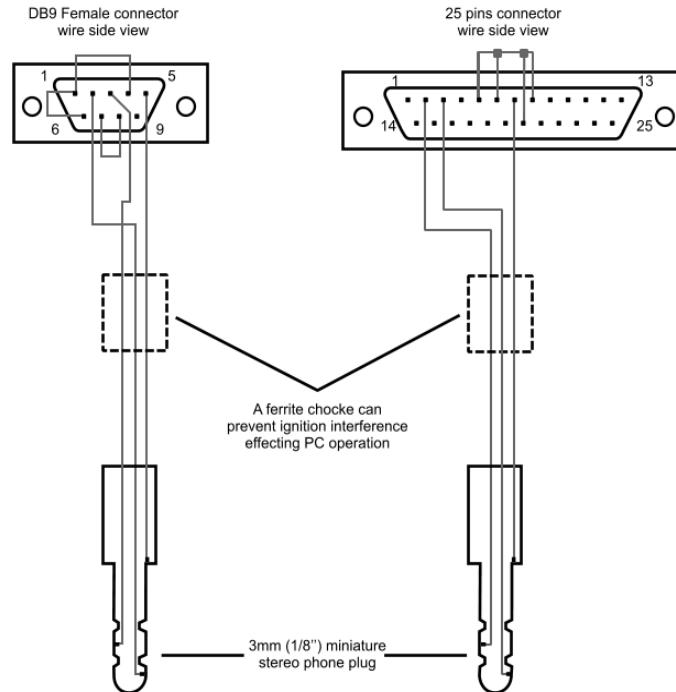


The ECU comes with a spiral cable ending with a Jack on one side and alternatively a DB9 female or a DB25 female on the other side. The Jack input of the ECU to be used is shown here above. The spiral cable is used to program the ECU as well as to communicate with external devices, like AIM ones.

Here below the spiral cable ending with a DB9 female connector is shown.



Here follow technical drawing of the two possible cables as well as connection tables.



DB9 connector pin	Pin function	AiM cable
5	GND	GND
2	RS232TX	RS232RX/ECU RS232TX
DB25 connector pin	Pin function	AiM cable
7	GND	GND
3	RS232TX	RS232RX/ECU RS232TX

Warning: the blue wire ECU RS232RX (or RS232TX) is not to be connected.

Please note:

AiM wiring harnesses supplied after September 2018 have the following labels:

ECU RS232TX (white) to be connected to **ECU TX** pin

ECU RS232RX (blue) to be connected to **ECU RX** pin (if indicated in the connection table above)

AiM wiring harnesses supplied before September 2018 have the following labels:

RS232RX (white) to be connected to **ECU TX** pin

RS232TX (blue) to be connected to **ECU RX** pin (if indicated in the connection table above)

4

Race Studio configuration

Before connecting the AiM devices to the ECU, set all functions using AiM software Race Studio. The parameters to set in the device configuration are:

- ECU manufacturer: **Autronic**
- ECU Model: **SM4** (Only RS2)
SM4_V108 (Only RS2)
SM4_V109

5

Protocols

Channels received by AiM devices change according to the selected protocol.

5.1

"Autronic - SM4" protocol

Channels received by AiM devices configured with "Autronic - SM4" protocol are:

CHANNEL NAME	FUNCTION
SM4_RPM	RPM
SM4_SPEED	Vehicle speed
SM4_DRVWHEEL_SPD	Driving wheel speed
SM4_WATER_TEMP	Water temperature
SM4_CHARGE_TEMP	Air/Fuel mix temperature
SM4_INTAKEAIR_TEMP	Intake air temperature
SM4_EXHAUST_PRESS	Exhaust gas temperature
SM4_MANIF_PRESS	Manifold air pressure



SM4_THROTPOS	Throttle position
SM4_CAM_1	CAM 1
SM4_CAM_2	CAM 2
SM4_AF_RATIO	Air/Fuel ratio
SM4_BATT_VOLT	Battery supply
SM4_ERR_C1	Error Channel 1
SM4_ERR_C2	Error Channel 2
SM4_ERR_C3	Error Channel 3
SM4_ERR_C4	Error Channel 4
SM4_ERR_C5	Error Channel 5
SM4_ERR_C6	Error Channel 6
SM4_ERR_C7	Error Channel 7
SM4_ERR_C8	Error Channel 8
SM4_INJECT_TIME	Injection time
SM4_IGNI_ANG	Ignition angle
SM4_KNOC_RET	Knock retard

5.2

“Autronic - SM4_V108” protocol

Channels received by AiM devices configured with "Autronic - SM4_V1.08" protocol are:

CHANNEL NAME	FUNCTION
SM4_RPM	RPM
SM4_SPEED	Vehicle speed
SM4_TURBO_SPD	Turbo speed
SM4_TPS	Throttle position sensor
SM4_IAT	Intake air temperature
SM4_ECT	Engine cooling temperature
SM4_OIL_TEMP	Oil temperature
SM4_CHARGE_TEMP	Air/Fuel mix temperature



SM4_FUEL_TEMP	Fuel temperature
SM4_MAP	Manifold air pressure
SM4_OIL_PRESS	Oil pressure
SM4_FUEL_PRESS	Fuel pressure
SM4_EXHAUST_PRESS	Exhaust pressure
SM4_AF_RATIO	Air/Fuel ratio
SM4_CAM_1	CAM 1
SM4_CAM_2	CAM 2
SM4_INJECT_PW	Injection power
SM4_IGN_ANG	Ignition angle
SM4_KNOC_RET	Knock retard
SM4_BATT_VOLT	Battery supply
SM4_ERR_C1	Error Channel 1
SM4_ERR_C2	Error Channel 2
SM4_ERR_C3	Error Channel 3
SM4_ERR_C4	Error Channel 4
SM4_ERR_C5	Error Channel 5
SM4_ERR_C6	Error Channel 6
SM4_ERR_C7	Error Channel 7
SM4_ERR_C8	Error Channel 8

5.3

“Autronic - SM4_V109” protocol

Channels received by AiM devices configured with "Autronic - SM4_V1.09" protocol are:

CHANNEL NAME	FUNCTION
SM4_RPM	RPM
SM4_SPEED	Vehicle speed
SM4_TURBO_SPD	Turbo speed
SM4_TPS	Throttle position sensor
SM4_IAT	Intake air temperature
SM4_ECT	Engine cooling temperature



SM4_CHARGE_TEMP	Air/Fuel mix temperature
SM4_MAP	Manifold air pressure
SM4_EXHAUST_PRESS	Exhausted pressure
SM4_AF_RATIO	Air/Fuel ratio
SM4_CAM_1	CAM 1
SM4_CAM_2	CAM 2
SM4_INJECT_PW	Injection power
SM4_IGN_ANG1	Ignition angle 1
SM4_IGN_ANG2	Ignition angle 2
SM4_KNOC_RET	Knock retard
SM4_BATT_VOLT	Battery supply
SM4_OIL_PRESS	Oil pressure
SM4_FUEL_PRESS	Fuel pressure
SM4_USER3	Custom channels 3
SM4_USER4	Custom channels 4
SM4_ERR_1	Error 1
SM4_ERR_2	Error 2